Sheet 1. 2 Sheets.

Forshey.

Steering.

No. 55,080. Patented May. 29, 1866.

Fig: 1.

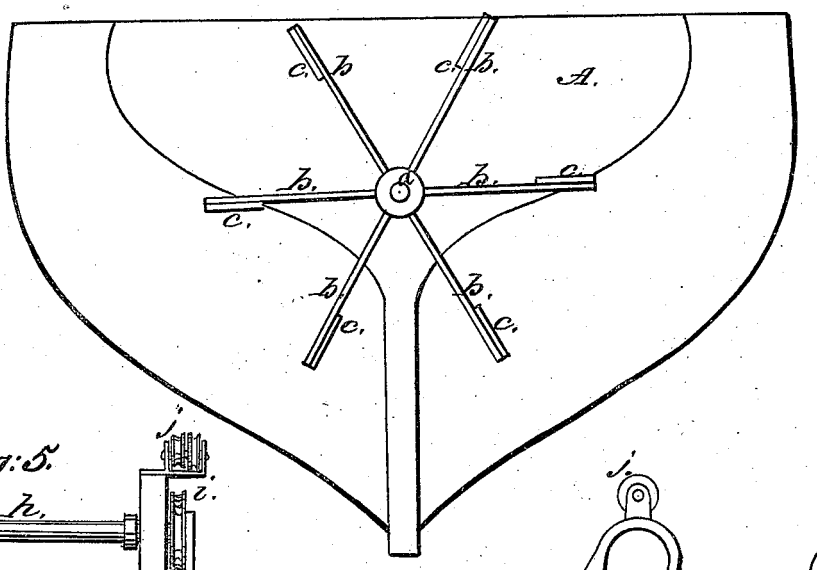

Fig: 5.

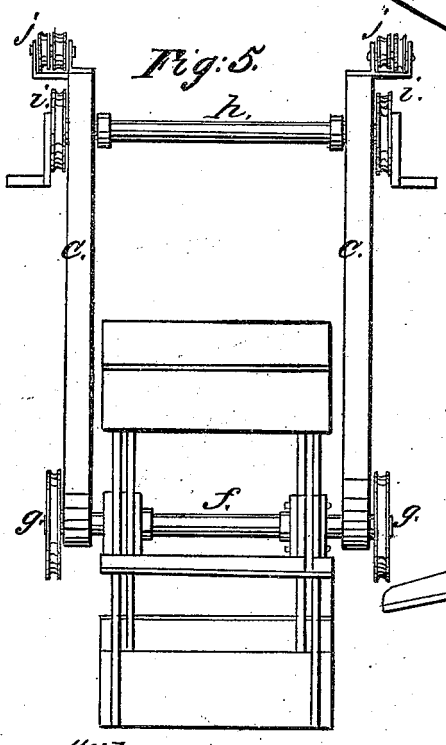

Fig: 4.

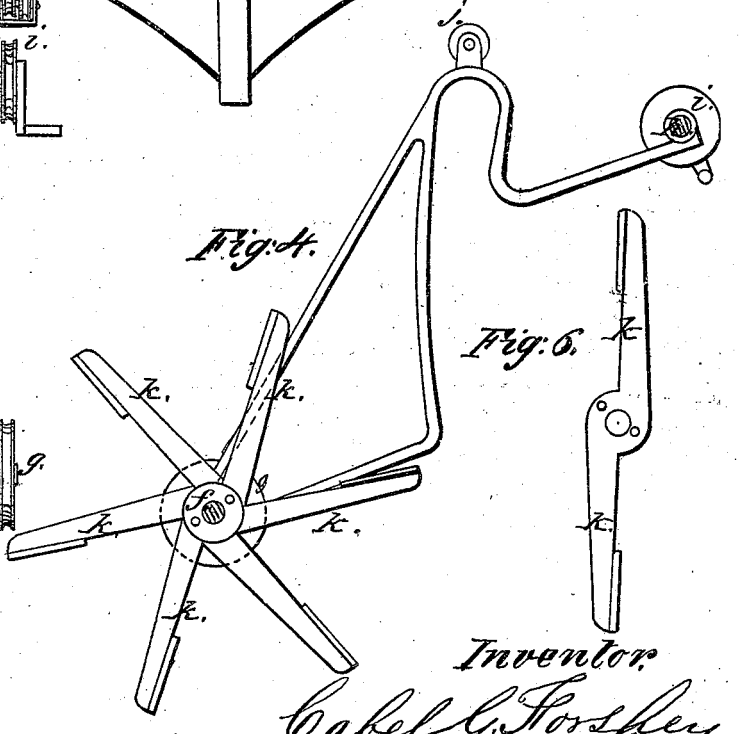

Fig: 6.

Witnesses.
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Edw Schafer

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Sheet 2. 2 Sheets.

C. G. Forshey.

Steering.

No. 55,080. Patented May. 29, 1866.

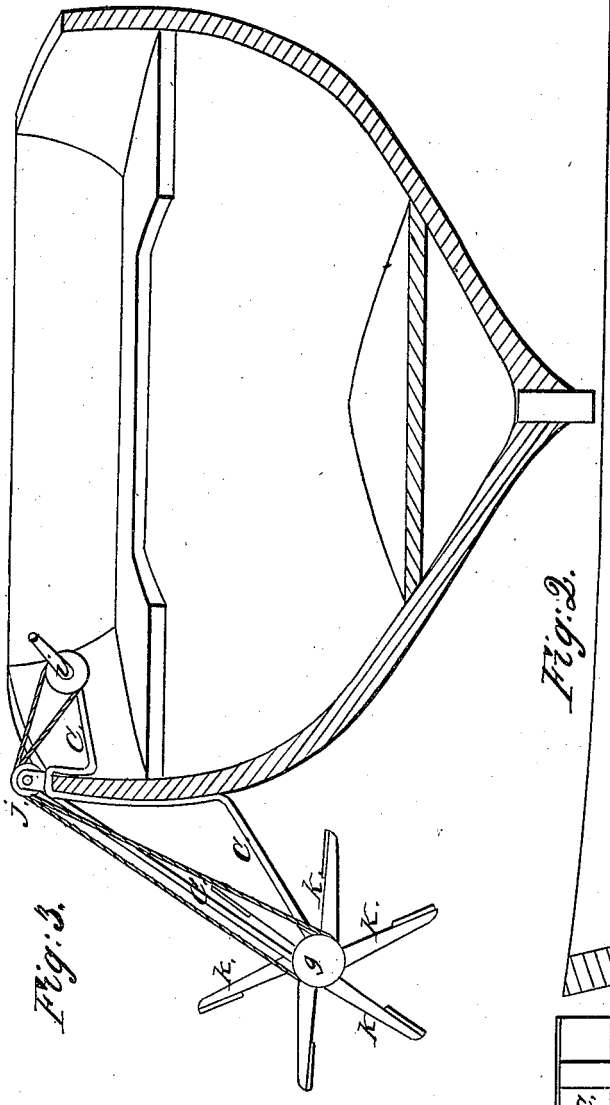

Fig. 1.

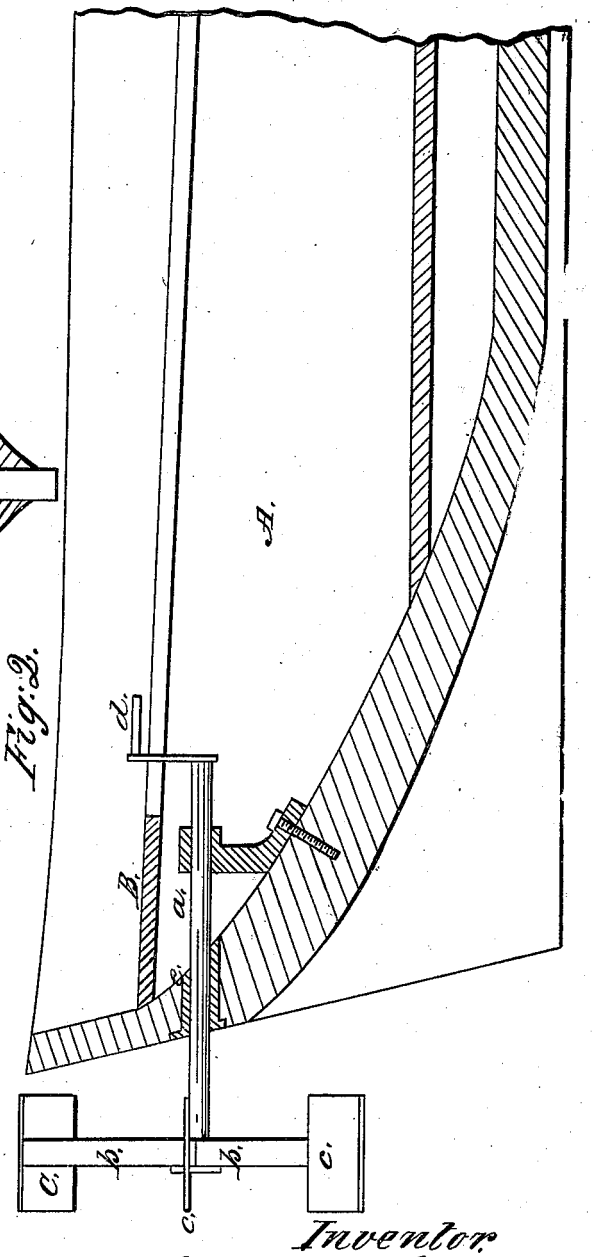

Fig. 2.

Witnesses.
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Edw. Schafer

Inventor.
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Attys.

UNITED STATES PATENT OFFICE.

CALEB G. FORSHEY, OF WASHINGTON COUNTY, TEXAS.

IMPROVED STEERING AND TURNING APPARATUS FOR VESSELS.

Specification forming part of Letters Patent No. **55,080**, dated May 29, 1866.

To all whom it may concern:

Be it known that I, CALEB G. FORSHEY, of Washington county, in the State of Texas, have invented a new and Improved Mode of Steering Large and Small Vessels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a view of the revolving steering-wheel applied to the stern of a vessel. Fig. 2 is a sectional view of the stern of a vessel having the hand steering-wheel applied, as in Fig. 1. Fig. 3 is a sectional view of a vessel looking astern, having the rotary steering apparatus applied to the side thereof. Figs. 4, 5, and 6 are views showing the particular construction of the side steering apparatus.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain improvements in steering vessels by means of rotary paddle-wheels the blades of which are arranged parallel to the keel and operated so that a vessel can be veered or turned in water without giving it any headway.

The nature of my invention consists in a steering apparatus operating upon the above principle which is so constructed that it can be applied to or removed from the fore or aft quarters of a vessel at pleasure, and when it is not in immediate use it can be folded up into a small compass and stowed away, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have represented my invention applied to a small sailing-boat; but I do not confine my invention to small boats, as it will be found useful for all kinds of vessels, and particularly such as are used on rivers.

Through the stern of the boat A a shaft, *a*, passes, which has a number of radial arms, *b b b*, secured to its outer end, to which arms floats or blades *c c c* are suitably secured, thus making in some respects a common paddle-wheel, with this difference, that the blades are arranged in lines parallel to the keel of the boat A. On the inner end of the shaft *a* a crank or hand wheel, *d*, is secured, by means of which a person can rotate the wheel while sitting upon the seat B. In order to prevent the entrance of water into the vessel around the shaft *a* if this shaft should penetrate the stern below the water-line, I employ a tubular stuffing-box, *e*, as shown in Fig. 2.

In Figs. 3, 4, 5, and 6 I have represented a steering apparatus which can be applied to or removed from the larboard or starboard sides of the vessel at pleasure, and which can be folded up and stowed away when not in immediate use. This apparatus consists, essentially, of a frame, C, which is curved, as shown in Figs. 3 and 4, so that it will fit over the gunwales and side of the vessel, and thus form a self-holding frame for supporting the paddle-wheel over the vessel's side. The lower ends of the frame C are adapted to serve as bearings for the shaft of a paddle-wheel, which shaft is in, or nearly in, a line parallel to the keel of the vessel.

On the extremities of the paddle-wheel shaft *f*, outside of the frame C, two pulleys, *g g*, are keyed, which receive over them belts or chains by which the said wheel is rotated. The upper extremities of the frame C terminate in bearings for a windlass or a shaft, *h*, which carries on its extremities pulleys *i i*, that receive the driving belts or chains above mentioned. These driving belts or chains also pass over pulleys *j j*, which have their bearings upon the frame C at its short bend, as shown in Figs. 3, 4, and 5.

Cranks are applied to one or both ends of the pulley-shaft *h*, for the purpose of enabling one or more persons to rotate the paddle-wheel when it is arranged over the side of a vessel, as shown in the drawings, Fig. 3.

If the paddle-wheel which is applied to the frame C is very large, the arms *k k* thereof can be constructed as shown in Fig. 6, and pivoted to their shaft *f* between collars which are fixed on this shaft, as shown in Fig. 5. This arrangement will allow of the arms folding up in a small compass when the steering apparatus is not in use. When it is to be used the arms are adjusted at a proper distance apart and secured in this position by means of keys or pins, which are passed through the collars on shaft F and through the arms.

If desirable, a clamp may be applied to that portion of the frame C which fits over the top

edge of the gunwale for keeping this frame down in a proper position; but for all ordinary purposes it is found that the frame C will be held in position when applied to the starboard or larboard gunwale, either fore or aft, in consequence of the peculiar shape given to it.

It is not intended to use this steering apparatus on the sides of a vessel to propel the vessel through the water, for the paddles or blades of the paddle-wheel are always to be in planes which are nearly, if not quite, parallel to the keel of the vessel. Consequently the action of the paddles on the water is nearly at right angles to that of the propelling paddle-wheels, and the vessel will be turned around either to the right or left without receiving any headway.

I am aware that rotary stern steering devices have been used in conjunction with side propellers and operated by means of engines, and I do not desire to claim, broadly, a rotary stern paddle-wheel having its blades parallel to the line of the keel for steering a vessel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The application of a rotary steering apparatus to a portable frame, C, which is so constructed that it can be readily applied to or removed from the side of a vessel at pleasure, substantially as described.

2. The construction of the supporting-frame C so that it shall be self-holding when applied to the side of a vessel, substantially as described.

Witness my hand in the matter of my application for a patent on an improved vessel-revolver this 26th day of March, 1866.

C. G. FORSHEY.

Witnesses:

D. T. CAMPBELL,

EDW. SCHAFER.